

SECTION C DESCRIPTION/SPECIFICATION/WORK STATEMENT

1. **BACKGROUND**

The Harpers Ferry Center, a unit of the National Park Service located in Harpers Ferry, West Virginia, provides audiovisual planning, production, and equipment installation and maintenance services to currently 385 units of the National Park Service. These services may also be supplied to other Bureaus of the Department and other Agencies of the Government. For further information about the Harpers Ferry Center, refer to the following web site: www.hfc.nps.gov.

Products and services under this contract include Complete Audiovisual Productions with Optional Installation Services and Audiovisual Production Services. Work may include:

- Planning and production of video and audio programs and ancillary exhibits, including research, treatment, scriptwriting and all phases of production and post-production.
- Planning, installation and maintenance of audiovisual systems and hardware at National Park Service locations.

The venues for audiovisual and multimedia programs include, but are not limited to, the following:

- Video projection in visitor center theaters.
- Videos (with and without audio) incorporated into exhibits, mini-theaters within exhibitions, and object theaters.
- Computer simulations and animations incorporated into audiovisual programs and exhibits.
- Audio programs associated with indoor and outdoor (wayside) exhibits.
- Soundscapes in exhibit settings, immersive environments, and historically furnished vignettes.
- Mobile audio for self-guided tours of landscapes, trails, and historic structures.
- Mobile audio featuring descriptions of interpretive media and park resources for visitors with visual impairments.
- Audiovisual programs depicting and interpreting park resources to provide programmatic access for wheelchair users and visitors with mobility impairments.

- Audiovisual and computer interactive programs featured in kiosks and computer workstations located in visitor center lobbies and exhibit areas.
- Audiovisual and computer interactive programs on web sites.
- Audiovisual and computer interactive programs for educational outreach in schools, community centers, and other public venues.

Production and delivery formats include film (16mm and 35mm), videotape (Betacam SP, Digital Betacam, HDcam, D5-HD and DVC pro), DVD, CD-Audio, CD-ROM and special venue formats. Audio can be mono, stereo, 3 channel, 5.1 channel and may require additional tracks for foreign languages and the visually or hearing impaired. The majority of programs required under this contract are interpretive, orientation or educational programs for use at a park's visitor center to educate and inspire audiences about the unique natural and cultural heritage of the site. There may be occasional need for instructional programs, public service announcements (radio and TV spots), audio stations, video news releases or other types of audiovisual programs.

The contract period will be for one year with the option of extending the contract for four additional one-year periods. The estimated volume of work for each category is set forth in Section B of this contract.

2. **PURPOSE**

The purpose of this contract is to meet the audiovisual production needs of the Department of the Interior, National Park Service and other agencies of the Government, by providing ready access to the skills, products, and services necessary to produce, deliver and install high quality programs. Work may include any phase or portion of audiovisual production as well as complete productions with optional audiovisual installation services.

All work performed under this contract will be directed by the issuance of Task Orders in accordance with procedures outlined in Section G. In no event will the Government be responsible for any work performed by the Contractor that is not undertaken pursuant to a Task Order authorized by the Contracting Officer.

3. **DEFINITIONS**

Applicable definitions common to all Categories of Services follows:

A. **DAY**

The word “day,” as referred to herein, shall be considered to consist of a standard ten-hour working day, including travel.

B. **PROFESSIONAL**

The word “professional” as referred to herein shall be considered to mean any individual whose primary source of income is derived from work done in his or her proposed position.

4. **GENERAL REQUIREMENTS**

A. **PARK RESOURCES AND OPERATIONS**

Because of the special nature of our parks, Contractors are expected to exercise the highest degree of sensitivity to the resources and to minimize interference with visitors, wildlife, and park operations. All Contractors are expected to comply with all rules and regulations and to acquire appropriate permits as needed.

B. **CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE**

An individual will be designated in each Task Order as the authorized Contracting Officer's Technical Representative (COTR). See Section G of the contract for all requirements pertaining to COTR.

C. **TRAVEL**

The Contractor will be expected to perform travel under this contract to locations, mainly within the United States and its territories, which will be specified by each Task Order. Some travel to international locations may also be required. See Section G of the contract for all requirements pertaining to travel.

D. **RIGHTS IN DATA AND RELEASES**

The Government will require unlimited rights for all data first produced in the performance of this contract. However, in the case of audiovisual and multimedia productions, stock footage, stills, library music, and other existing works will be required to be cleared only for one-time, non-exclusive, unrestricted use in the productions. Rights for talent will be handled on a case-by-case basis and specified in each Task Order. See Section G of the contract for all requirements pertaining to Rights in Data – Special Works.

The Contractor shall deliver signed releases and license agreements for all stock footage, talent, stills, library music, and other existing works used under this contract. All performance, release or copyright fees shall be paid by the Contractor and attributed to a specific Task Order.

Parks and agencies may elect to produce the program for sale to the general public through the visitor center bookstore run by the park's friends association or other nonprofit group. If the program is proposed for sale, this will be set forth in the Task Order and these additional rights and licenses must be obtained. In other cases, the Government may require full rights for public broadcast. This will also be set forth in the Task Order. Any rights or licenses required beyond one-time, non-exclusive use for work not first produced in the production will be set forth in the Task Order and must be taken into account by the Contractor in pricing the project. A sample Release Form is provided as Attachment A. Unless otherwise specified, this release form shall be used for all clearances.

The Contractor retains no rights to pre-production elements gathered or generated in any production or the entire production produced under this contract. All signed releases shall be provided on or before the final delivery date cited in the Task Order. Failure to provide all required signed releases or agreements in a timely manner will result in the withholding of final payment and may be considered to constitute Default as set forth in the clause at FAR 52.229-8.

5. **SCOPE OF WORK FOR COMPLETE AUDIOVISUAL PRODUCTIONS AND AUDIOVISUAL PRODUCTION SERVICES WITH INSTALLATION SERVICES**

These specifications are meant to incorporate all phases of an audiovisual production, including, but not limited to, planning, research, pre-production, production, post-production and installation services. It includes all equipment, materials, and personnel required to complete the specific Task Order. All Task Orders are subject to all contract provisions unless specifically stated otherwise in the Task Order.

A. **PRE-PRODUCTION PLANNING AND RESEARCH**

The Contractor shall attend a pre-production meeting(s) at a location(s) set forth in the Task Order. The purposes of such meeting(s) are to become familiar with locations and the subject matter, to meet with Government staff and subject matter specialists, and to research materials at appropriate libraries, archives and repositories. Meetings may be conducted by use of telephone conferencing as set forth in the Task Order.

The Contractor may be required to prepare a Project Agreement documenting principal decisions and agreements reached as they relate to audiovisual production schedules and budgets. The Contractor may also be required to coordinate with other Government personnel and/or Government Contractors regarding the installation and operation of audiovisual equipment necessary for the presentation of audiovisual programs. Key meetings and meeting schedules will be specifically identified in each Task Order; however, the Contractor is expected to be available for important or unscheduled meetings as may be required to facilitate the production.

B. **TREATMENT AND/OR SCRIPT**

(1) **TREATMENT**

See Section G of the contract for Treatment requirements.

(2) **SCRIPT RESEARCH**

The Contractor shall perform and document all research necessary to meet the production objectives.

(3) **SCRIPTWRITING**

Unless otherwise specified in the Task Order, or proposed in an approved Production Plan, scripts shall be presented in the standard two-column format. The right column shall depict narrative and dialogue, and the left column shall depict visual information and cueing. Each paragraph in the script should be numbered. The script shall be prepared on 8-1/2 x 11-inch paper and shall be submitted in three copies, unless otherwise specified in the Task Order. The cover shall contain the following information: title, production number, date, client organization and address, and the Contractor's name, address, and telephone number. An electronic file in the latest version of Microsoft Word shall also be provided.

(4) **TREATMENT AND/OR SCRIPT REVIEW AND APPROVAL**

The Contractor shall submit all draft and final treatments and scripts for review and approval by the COTR in accordance with Section F of the contract, unless otherwise specified in the Task Order.

C. **PRODUCTION**

(1) **PRODUCTION STANDARDS**

The Contractor shall provide all production services, personnel, supplies, travel, transportation, and equipment to perform in accordance with the requirements stated herein and as specified in the Task Order.

Performance under this contract shall be in accordance with professional television broadcast, video and film production standards and/or procedures. All work shall be performed in a National Television Standards Committee (NTSC) Standard of 525 lines, 60 fields, 29.97-frames/sec-color video system unless another format is requested in the Task Order (e.g. High Definition). All film to videotape transfers and original videotapes shall be recorded with non-drop frame SMPTE time code. All footage shot with synchronous sound shall have the sound recorded in sync on the videotape.

These production standards may be revised during the course of this contract to reflect evolving industry standards and changing technology, such as the development of High Definition Television (HDTV), and in response to changes in common business practice within the industry. The Contractor shall comply with new and/or changing technology and upgrade as necessary. (See Section H of the contract for New and/or Changing Technology).

NPS GRAPHIC IDENTITY PROGRAM

The National Park Service has developed a corporate identity program that includes guidelines for all public communications media. Productions designed and developed for the National Park Service shall maintain graphic consistency with these guidelines. Requirements for specific audiovisual productions will be described in the Task Order. If no other specifications are given, the only requirement is the use of the National Park Service Arrowhead and a short text at the end of the program. The Contracting Officer will supply both the Arrowhead and text at time of contract award. The National Park Service approved typefaces are NPS Rawlinson and Adobe Frutiger. The NPS Rawlinson will be provided as Government-Furnished Property. The Contractor shall purchase Adobe Frutiger, if needed. Both typefaces are Type 1 PostScript fonts.

(2) **MOTION PICTURE OR VIDEOGRAPHIC CREW**

All crewmembers shall have a minimum of three years of professional experience. The cinematographer/videographer shall have a minimum of three years of professional experience and be proficient in the use of 35mm, 16mm, Super 16mm, Betacam SP, Digital Betacam or High Definition Video cameras and recorders as appropriate to the production. The cinematographer/videographer shall have practical experience and knowledge of lighting design. Physical requirements may include the ability to work in a wide variety of settings ranging from urban environments to remote wilderness settings with no modern amenities.

(3) **TALENT/ACTORS**

The term "professional talent" is defined as an individual whose primary source of income is derived by appearing in entertainment productions produced by a profit-making company, who has appeared in one or more similar roles in a professionally produced film, videotape or television production.

All talent used in the performance of work under this contract shall be costumed and equipped by the Contractor. Contractor personnel shall not appear in any scenes of the production. The Contractor shall give the COTR prior notification of the time and place of casting sessions. Casting shall be accomplished at a city or location where there is a sufficient supply of professional talent to provide at least three or more choices for each major role.

The COTR will review and approve proposed actors and voice-over talent.

(4) **SHOOTING AND PRODUCTION SCHEDULE**

The Contractor shall provide three copies of a Shooting and Production Schedule to the COTR as part of the production proposal, as required by the specific Task Order or in any event no later than seven calendar days prior to the proposed start of shooting. In addition to the daily shooting schedule, the Production Schedule shall include information on the crew selected for the shoot, the crew call times, crew travel and lodging information, emergency contact information, Government contact requirements, and anticipated location(s) of shoot. When shooting in restricted locations, the Contractor shall specify clearance needs or fee requirements.

(5) **LOCATION CINEMATOGRAPHY AND VIDEOGRAPHY SOUND**

Wild and/or sync sound shall be recorded throughout filming and videography and shall be included in the final edited production when appropriate.

(6) **CINEMATOGRAPHY AND VIDEOGRAPHY**

All motion picture cinematography shall be filmed on a 16mm or Super 16mm professional camera with film registration pin and a frame line centered on the sprocket hole(s), or a 35mm professional quality movie camera. Specifications for film stock should be provided and proposed by the Contractor for approval by the COTR. High speed Kodak stocks 5279/7279; 5289/7289 (or Fuji Equivalents) shall not be used unless approved in the Production Plan. All videography shall be recorded on new, professional grade tape stock. All cameras shall be mounted on a tripod, steadicam, or other stabilizing device as specified in the Task Order or Production Plan. Movement must be steady and of excellent, professional quality. Handheld camerawork is allowable only if specifically called for in the script and is appropriate to the film. All camera rolls shall be clearly slated with a unique number. The slate shall have the following minimum information: Four-letter Park acronym, TV Number, date and film stock.

(7) **FILM PROCESSING**

Quality of film processing shall be in accordance with laboratory standards and procedures as covered in the latest edition of the Association of Cinema and Video Laboratories (ACVL) Handbook.

(8) **VIDEO TRANSFERS**

Film-to-tape transfer shall be performed on a professional, state-of-the-art transfer machine. The method used for film-to-tape transfer shall be specified by the Contractor for approval by the COTR. Footage that is scratched shall be transferred with a liquid gate. All film will be professionally prepared and cleaned before transfer to video. Unless otherwise specified in the Task Order, all film footage shall be transferred to Digibeta. All film shot with sync sound shall have the audio recorded on to the videotape with non-drop frame SMPTE timecode. The Contractor shall provide VHS window dubs of all original footage. Both original (except existing stock footage) and transfers will become property of the Government.

(9) **LOCATION RECORDING**

Unless otherwise specified, recordings of wild and/or sync sound shall be made on professional DAT at a 48kHz-sampling rate. Original sync and/or wild recordings of background ambience at each location and sync recording of any shots (other than uncontrolled wildlife) where sync will be clearly discernible are required. All individual reels/cassettes of recorded tape shall be identified (both reel/cassette and box) with date, sound and film roll numbers, and show identification. This information shall be recorded at the head of each reel. A log identifying each sound take shall be provided. Identifying slates with clap-sticks shall be used as often as possible even when documentary technique with automatic "bloop," "silent-slate," "smart-slate," or a time code system is used. If Dolby is used, a minimum of five seconds of Dolby-tone shall be recorded at the head of each reel at the time of original recording.

(10) **SCORING AND SOUND EFFECTS**

The Contractor shall provide stereo music and sound effects as required by the approved script; however, the Contractor may add music or sound effects when, in the Contractor's professional judgment, such additional music or sound effects will enhance the presentation. Any additional music or sound effect shall be accomplished at no additional cost to the Government.

All music used in this production shall be cleared, and all fees to those with performance or copyrights should be paid for by the Contractor, for non-exclusive, unlimited worldwide use in the production(s), unless restricted by the Task Order. Original music scores and sound effects produced under this contract become the property of the Government.

A statement identifying all library music scores and copies of all clearances shall be furnished in the completion report as part of the final deliverables.

The Contractor shall use Dolby "A" or "SR" noise reduction for all analog recording and through all stages of transfer, dubbing and mixing of analog magnetic soundtracks.

(11) **DIGITAL AUDIO**

All digital audio for video programs shall be created at a sampling rate of 48KHz, unless otherwise specified in the Task Order. Audio programs delivered on CD shall be created at 44.1KHz.

(12) **ROUGH CUT**

The Contractor shall submit to the COTR for review and approval, a rough cut of the program containing enough of the structure and content to evaluate the validity of the approach and to determine if changes or modifications are needed to meet the project objectives.

(13) **OFF LINE FINE CUT**

The Contractor shall submit to the COTR for review and approval, an offline fine cut (not final mix or online picture) containing all sound, music, and effects, all still, moving, and graphic images, and the complete final narration. A list of Production Credits shall also be submitted to the COTR for review and approval.

(14) **EDIT REVIEW AND APPROVAL**

The Contractor shall submit all rough edits and final edits for review and approval by the COTR in accordance with Section F of the contract.

D. **CAPTIONING**

(1) **CLOSED CAPTIONS**

The Contractor shall close caption productions, unless otherwise specified in the Task Order.

(2) **CAPTION SPECIFICATIONS**

Closed captions shall conform to National Captioning Institute line 21 specifications. Each caption shall consist of no more than two lines. Each line shall consist of no more than 32 characters, unless otherwise specified in the Task Order.

(3) **CAPTION REVIEW AND APPROVAL**

The Contractor shall submit all captions for review and approval by the COTR in accordance with Section F of the contract. Caption review and approval will be five calendar days, unless otherwise specified in the Task Order.

The Contractor shall provide a VHS open captioned check cassette with visual time code and a copy of the text of the caption script for review and approval by the COTR. The Contractor shall not proceed with the final deliverables until the VHS check cassette is approved by the COTR.

E. **DELIVERABLES**

The Contractor shall submit the following clearly labeled deliverables for each Audiovisual Production, unless otherwise specified in the Task Order. All production elements gathered for this production, including research materials, shall be included in the final deliverables. All delivery elements shall be boxed or canned and packaged in accordance with normal commercial standards for domestic delivery of such items. All boxed or canned packages shall be labeled to show the Contract Number, Task Order Number, TV Number, Title, Running Time, and Description of Contents as follows:

Contract Number:

Task Order Number:

TV Number:

Title:

Running Time: xx:xx

Description of Contents:

All deliverables are subject to final review and approval by the COTR. Final payment will not be made until all deliverables are received and accepted by the Contracting Officer. Deliverables are as follows:

- (1) One Digital Betacam (or as specified in Task Order) edit master of the complete program formatted to NPS specifications in accordance with the specifications provided at the end of this Deliverables Section.
- (2) One Betacam SP dub of digital edit master.
- (3) One Digital Betacam edit master (or as specified in Task Order) with closed captions.
- (4) One Betacam SP edit master with closed captions.
- (5) All original film, audio, and video source tapes properly labeled with logs.
- (6) All original artwork, graphics, photographs, slides, transparencies, or other source materials created for the production.
- (7) Two identical VHS dubs of the complete program with closed captions.
- (8) An electronic file in the latest version of Microsoft Word of verified script.

- (9) Logs with timecode references of the film transfers.
- (10) All cross-media transfers.
- (11) Any preprint or sub-masters used in the production.
- (12) Audio final mixes: Mixes containing one to four channels shall be delivered on the master and protection videotapes. 5.1 channel mixes shall be delivered on DA-88 at 48kHz, with SMPTE NDF time code identical to the master. The DA-88 shall also contain a stereo mixdown on 2 tracks. The master and protection videotapes for 5.1 programs shall contain stereo mixdowns on 2 tracks.
- (13) Audio Post Production Elements: Unless specified otherwise in the Task Order, all unmixed music, sound effects, dialog and narration with SMPTE NDF time code identical to the master. Recording shall be on professional grade DA-88 compatible audiotapes recorded at 48kHz or as sound files from a pre-approved Digital Audio Workstation or video non-linear editor. Mix cue sheets shall be provided either on paper or as digital files.

It is required that Dolby "A" or "SR" noise reduction be used for all analog recording and through all stages of transfer, dubbing, and mixing of analog magnetic soundtracks.

- (14) Original, unmixed music recordings with log sheets or a list of sources and copies of Release Forms for any music used.
- (15) All other sound recordings made for this project. All sound recordings on magnetic tape or film shall be on polyester base stock. Cellulose acetate tape or film is NOT acceptable.
- (16) All completed Release Forms and License Agreements for the production.
- (17) Nonlinear offline settings and/ or if available, online settings.
- (18) Completion Report – See Attachment C.

F. **REVIEW AND APPROVAL**

All deliverables are subject to review and approval by the COTR in accordance with Section F of the contract.

G. **NATIONAL PARK SERVICE MASTER TAPE REQUIREMENTS**

Tape Start	00:58:00:00	
Black/silence	00:58:00:00	00:58:30:00
Color Bars/Tone	00:58:30:00	00:59:30:00
Slate	00:59:30:00	00:59:35:00
Black/silence	00:59:35:00	01:00:00:00
Program *	01:00:00:00	01:XX:XX:XX
Black/silence	(30 seconds)	
Color bars	(5 seconds)	
Black/silence	(30 to 60 seconds)	

*includes "Attract Loop" or DVD menu if specified

TAPE LABEL AND SLATE TO READ:

NPS TV-XXX XXXX (NOTE: TV number plus 4-letter park acronym)

"Title of the Program"

XX:XX (total running time of the program)

Mono/stereo/closed captioned, etc.

Production Company

Mastering Date

The COTR will issue disc and TV numbers.

When supplying "attract loop"

Picture or audio shall be on the master.

Parameters:

- 60% to 70% maximum luminance.
- Low contrast.
- To prevent CRT burn-in, text and images shall be varied in placement within each frame.
- Attract loop shall be 3 or 4 images with "PUSH BUTTON FOR PROGRAM" superimposed, with a running time of 15 seconds each, for a total loop time of 45 or 60 seconds. Alternately, provide a moving attract loop with "PUSH BUTTON FOR PROGRAM" dissolving in and out in various places on the screen.
- Attract loops shall be approved by COTR prior to final edit of the program.

H. **INSTALLATION SERVICES**

If required by the Task Order, general specifications for the planning, installation and maintenance of audiovisual systems and hardware at National Park Service and other Government locations follow:

(1) **GENERAL**

- (a) All equipment and installation materials required shall be new and furnished whether specifically enumerated or on any incorporated drawings.
- (b) Prior to ordering equipment and materials for the audiovisual system, the Contractor shall provide four complete sets of the following:
 - 1. Shop drawings showing all equipment, cables, connectors, and devices to be used in the fabrication of the system. All equipment shall be labeled as to function. All cables and connection points shall be identified as to type and service. Cables shall be uniquely labeled as to their use and a numeric identifier. Drawings shall be no smaller than 11"x17".
 - 2. The Contractor shall provide descriptive literature for all major components specified or proposed for use in the system. This information shall be bound in book form. Neither loose materials nor incomplete versions will be acceptable.
- (c) The Contractor shall guarantee all equipment and materials provided by the Contractor as well as installation practices for a period of one year from the date of acceptance by the COTR.
- (d) The Contractor, if requested to do so by the COTR, shall be prepared to show by "Proof of Performance" test that the equipment being proposed for use in this project is equal to or better than that specified. This proof shall be provided by actual real time tests and not by printed sales literature.
- (e) Workers fully competent in the fabrication, installation, and implementation of professional audiovisual, video, sound reinforcement, and cinema playback systems shall perform the work specified in a thorough manner.

- (f) The Contractor shall take precautions as necessary to guard against electromagnetic and electrostatic hum, spurious oscillation, to provide for adequate ventilation and to install the equipment to provide maximum safety to any user or operator.
- (g) Care shall be exercised in wiring the systems to avoid damage to cables and equipment. All joints and connections shall be made with rosin core solder or with mechanical connectors approved by the COTR.
- (h) The Contractor shall submit to the COTR a letter of completion when the system is complete and in proper operating condition. Final tests shall be made in the presence of the COTR, who shall be notified of the test date a minimum of one week prior to that date.
- (i) The Contractor shall provide the following information after the system is complete and accepted by the COTR. These documents shall be bound.
 - 1. As-built wiring diagrams for each system as derived from the shop drawings and actual installation results. As-built drawings to be provided 11"x 17" or larger paper plots and .dwg or .dxf files on CD-ROM.
 - 2. Installation, maintenance, and user instruction manuals for all components of the systems.
- (j) The Contractor's responsibility includes bringing to the attention of the Contracting Officer any aspects of the designs and specifications included which the Contractor anticipates or foresees will cause any problems, setbacks, or other undesirable results in delivery, fabrication, installation, operation, or other aspects of the systems described.

- (k) Preceding final checkout, the Contractor shall provide six copies of a printed and bound manual for use in operation and simple troubleshooting of the audiovisual systems specified here. One Master copy of the manual shall include the owner's operating/service manuals for each item of equipment used in the specified system. The manual layout as a minimum shall be:

1. Cover / Title
2. Contents
3. Systems Block diagram(s) (11"x17")
4. Systems Overview description(s)
5. System Operation
 - (1) Daily System Procedures
 - (2) *Show Start* operation
 - (3) Showing Other Media
 - (a) DVD
 - (b) VHS
 - (4) System Adjustments
 - (a) Audio
 - (b) Video
6. Troubleshooting Guide
 - (1) Video
 - (2) Audio
 - (3) Controls

- (l) Using the manual specified, the Contractor shall provide no less than two hours of training and instruction to personnel designated by the COTR. Submit a draft copy of the training and troubleshooting manual for approval before final printing and distribution.

2. **FUNCTIONS AND OBJECTIVES**

- (a) Remove from service all audiovisual equipment, hardware, materials and supplies not intended for reuse from the exhibits, theater and/or AV projection booth. Turn over all such apparatus and materials to the Park's designated representative.
- (b) As required by the Task Order, provide and install fully working audiovisual, audio, and video playback systems comprised of Contractor supplied and Government-furnished equipment and materials.
- (c) Provide the audiovisual system described herein free of artifacts such as hum, noise, or distortion of any level above that specified by the manufacturers of the equipment specified and/or provided.

3. **SYSTEM OVERVIEW**

System Overview will be listed in each Task Order.

4. **EQUIPMENT**

- (a) Government-Furnished Property (GFP) will be listed in each Task Order. The term “GFP” designates Government-Furnished Property to be provided by the Government. Such equipment will be provided to the Contractor for integration into the audiovisual system. The Contractor shall protect all equipment placed in their care for this project guarding against damage to the equipment both cosmetically and operationally. The Contractor at no additional cost to the Government will replace equipment damaged while in the Contractor’s possession.
- (b) Video and Playback will be listed in each Task Order.
- (c) Audio requirements will be listed in each Task Order.
- (d) Control System requirements will be listed in each Task Order.
- (e) Equipment Racks will be listed in each Task Order.
- (f) **HARDWARE, CABLE, CONNECTIONS**
 - 1. All support hardware shall be of a grade equal to at least 4 times the rated load weight of the equipment being supported.

2. Cabling and Connectors: Care shall be taken to bundle and secure all cables that interconnect electronic devices integral to the system with destinations outside the equipment rack. Strain relief, harnesses and segregation of cables according to signal levels must be maintained throughout. Crimp type connections shall be accomplished with ratchet type crimping tools as recommended by the crimp connection device manufacturer. Possession by any Contractor employee or personnel under the Contractor's supervision of a single-action crimp tool on the job site will be sufficient evidence to require the Contractor to reconstruct all such connections in the work. Use of gender adapters; video or audio connection adapters; prefabricated, molded, or modular connecting cables are prohibited for use in these systems. Unused conductors, shields, or drain wires shall be dressed under heat shrink tubing not cut.

(g) CABLE

1. Line level audio cables, balanced and unbalanced: Belden 8451 or West Penn 291.
2. Loudspeaker level audio cables, low impedance: 20' or less - West Penn 225; 30' or less – West Penn 226; 75' or less West Penn 227.
3. Loudspeaker level audio cables, high impedance: West Penn 225.
4. Composite Video Cable: Belden 8241.
5. Control cables: West Penn 222, 262.6.
6. Portable video cables – Canare LV77S (Composite) or V5-4CFB (Component) by Belden or Trompeter.
7. Portable audio cables – Canare L4E6S.
8. Portable Control Cable – As recommended by control system manufacturer.
9. Quantities: As required

(h) CONNECTORS

1. Balanced audio connectors: Switchcraft QG series, ITT-Cannon XLR or Neutrik NC series.
2. Unbalanced audio connectors: Canare or Neutrik.
3. Miscellaneous audio connectors: Switchcraft, Neutrik or ITT Cannon.
4. Video connectors – As manufactured by Canare, Kings or Trompeter. Provide as required according to cable type.

5. Terminal blocks – As manufactured by Wago, Weidmuller or Phoenix Contact. Provide as required according to cable type.
6. Slide control connector: RMF Products 990.
7. Quantities: As required.

(i) **PUSHBUTTON SWITCHES**

As required by the Task Order, the Contractor shall provide the following:

1. Type A Pushbutton Switches - Round or square as shown on Task Order with front removable replaceable lenses and lamps (where required). Each switch shall include DPST normally open gold plated nickel contacts with less than 50m² resistance, voltage range of 100 micro Volts/10 micro Amps to 42 V/100mA. The pushbutton shall have an anticipated mechanical life of 5-million operations. Provide action (momentary, maintained, alternate action) as called for in these specifications. Provide one set of any specialized tools (wrenches, lamp removal tools, etc) necessary for dismantling, or servicing these switches lighted or not. Include two spare lamps for every lighted button. Provide EAO Series 14 Snap Action with plastic lens and diffuser (verify colors with COTR before ordering) and anodized aluminum front ring flush adapter.
2. Type B Pushbutton Switches – Round or square as shown on Task Order with front removable replaceable lenses and lamps (where required). Each switch shall include DPST normally open gold plated nickel contacts with less than 50m² resistance, voltage range of 100 micro Volts/10 micro Amps to 42 V/100mA. The pushbutton shall have an anticipated mechanical life of 5-million operations. Provide action (momentary, maintained, alternate action) as called for in these specifications. Provide one set of any specialized tools (wrenches, lamp removal tools, etc) necessary for dismantling, or servicing these switches lighted or not. Include two spare lamps for every lighted button. Provide EAO Series 31 Snap Action with flat translucent lens. (Verify colors with COTR).

5. EXECUTION

- (a) As required by the Task Order, the Contractor shall calculate anticipated heat loads for equipment used in the audiovisual system and provide a detailed report to the COTR. The Contractor shall provide and install convection vents and/or cooling fans as necessary if required to prevent the equipment's environment temperature from rising no more than 30°F. over the ambient temperature of the adjacent space. Fans, if used, shall be selected to provide the maximum amount of airflow with the minimum amount of noise contribution.
- (b) Persons trained and experienced in audiovisual, sound and video installation technology shall perform all assembly, fabrication, and installation work. All installation practices shall be adhered to as described in pertinent chapters of the following publications:
 - 1. Audio Systems Design and Installation Author - Philip Giddings, Focal Press
 - 2. Sound System Engineering – Second Edition Authors - Don and Carolyn Davis, Howard W. Sams & Co.
- (c) In addition to above references, all requirements of the latest published edition, including but not limited to the following shall apply unless otherwise noted. In case of conflict between cited or referenced standards, the more stringent example or standard shall apply to the situation in question.
 - 1. National Electrical Code (NEC)
 - 2. Federal Communications Commission (FCC)
 - 3. Society of Motion Picture and Television Engineers (S.M.P.T.E.)
 - 4. American Society for Testing Materials (A.S.T.M.)
 - 5. Electronic Industries Association (E.I.A.)
 - 6. Handbook for Riggers 1977 Revised Edition, W.G. Newberry; Calgary, Alberta Canada
 - 7. Basic Principals for Suspended Loudspeaker Systems, Technical Notes Volume 1, Number 19, JBL Professional Division
 - 8. Sound System Engineering – Second Edition, Don and Carolyn Davis, Howard W. Sams and Co.
 - 9. Audio Systems Design and Installation, Philip Giddings, Focal Press